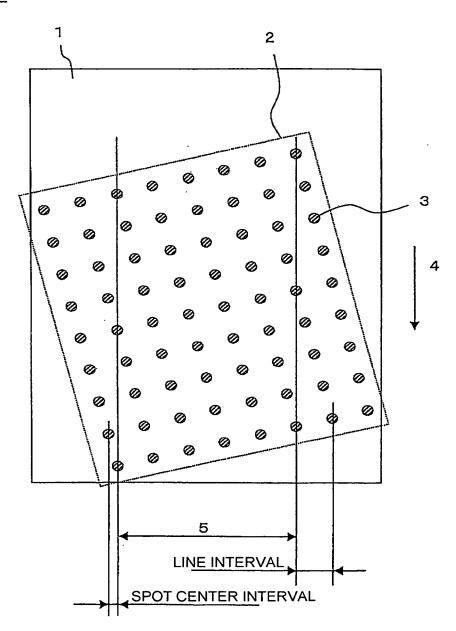
Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

FIG. 1

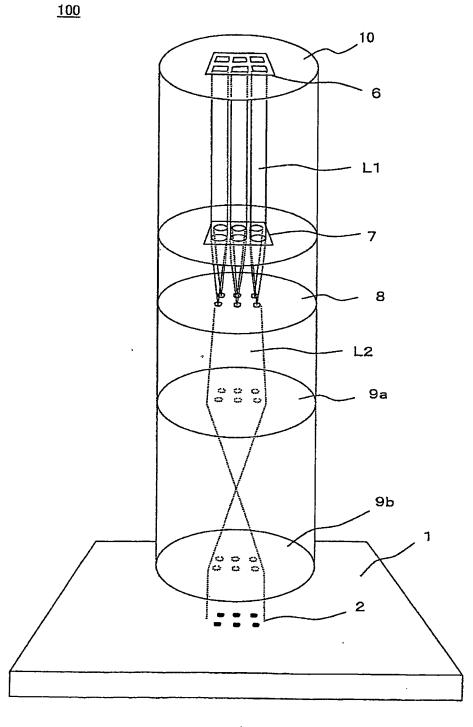
100



Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

FIG. 2



Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

FIG. 3

(a) FORMULAS

SPOT CENTER INTERVAL (D) = d · G

NUMBER OF SPOTS BETWEEN LINES (N) = (Y-1)/(G-1)~Y/G

LINE INTERVAL (S) = D · N

EFFECTIVE EXPOSURE WIDTH (W) = (X-2G)·S

NUMBER OF SCAN TIMES (m) = XM/W

SCAN SPEED (V) = D · f

WRITING TIME (T) = (YM/V) · m

(b) EXPLANATION OF SYMBOLS

G: NUMBER OF GRADATIONS

d: MINIMUM GRID SIZE ON SUBSTRATE

(X, Y): NUMBER OF MICROMIRROR PIXELS (TRANSVERSE DIRECTION, LONGITUDINAL DIRECTION)

(XM, YM): WRITING AREA IN SUBSTRATE (TRANSVERSE DIRECTION, LONGITUDINAL DIRECTION)

f: MICROMIRROR DEFLECTION FREQUENCY (Hz)

(c) DESIGN EXAMPLE

G = 64 GRADATIONS

d = 1.56nm

X = 2048, Y = 512

XM = 132mm, YM = 100mm

f = 2,000Hz

(d) CALCULATION RESULTS

D = 1.56nm $\times 64 = 0.10$ µm

 $N\sim512/64=8$

 $S = 0.10 \mu m \times 8 = 0.8 \mu m$

 $W = (2048 - 2 \times 64) \times 0.8 \mu m = 1.536 mm$

m = 132mm/1.536mm=86 TIMES

 $V = 0.10 \mu m \times 2,000 = 0.2 mm/s$

 $T = (100 \text{mm}/0.2) \times 86 = 43000 \text{s} \sim 12 \text{h}$

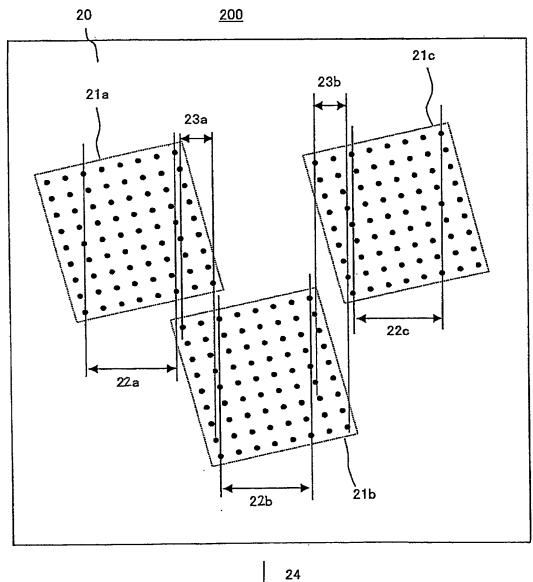
Title: PATTERN WRITING
SYSTEM AND PATTERN
WRITING METHOD
Inventor(s): Tadahiro OHMI, et al.

DOCKET NO.: 039262-0142

10/552731

FIG. 4

ξ,



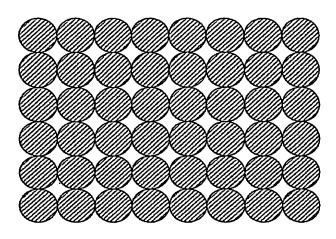
Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

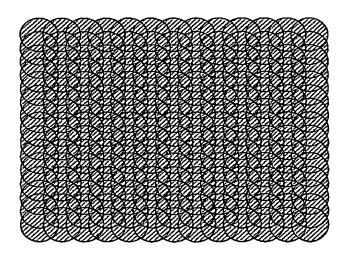
FIG. 5

....

(a)

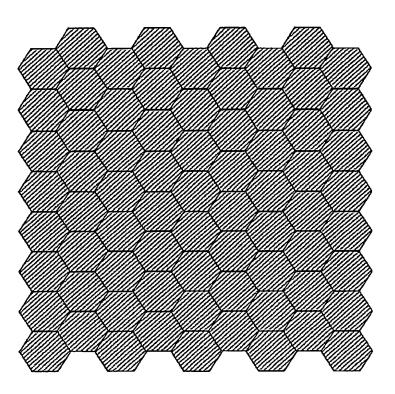


(b)



DOCKET NO.: 039262-0142

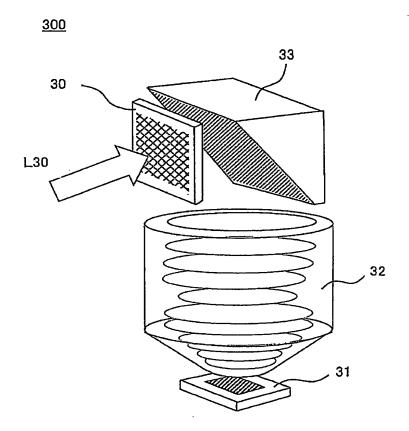
FIG. 6



Title: PATTERN WRITING
SYSTEM AND PATTERN
WRITING METHOD
Inventor(s): Tadahiro OHMI, et al.

DOCKET NO.: 039262-0142

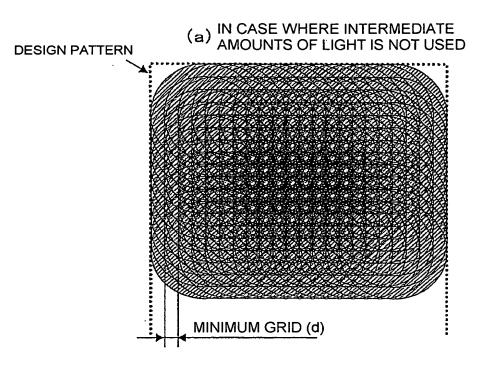
FIG. 7



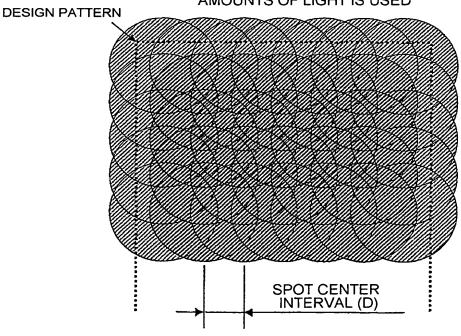
Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

FIG. 8



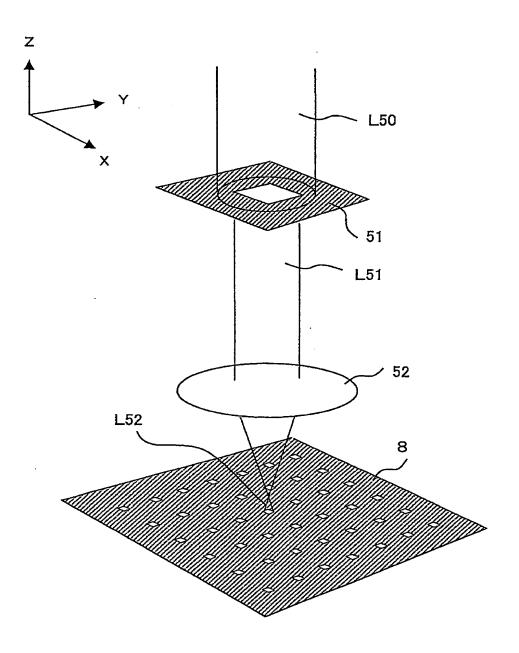
(b) IN CASE WHERE INTERMEDIATE AMOUNTS OF LIGHT IS USED



8/25

Title: PATTERN WRITING
SYSTEM AND PATTERN
WRITING METHOD
Inventor(s): Tadahiro OHMI, et al.
DOCKET NO.: 039262-0142

FIG. 9

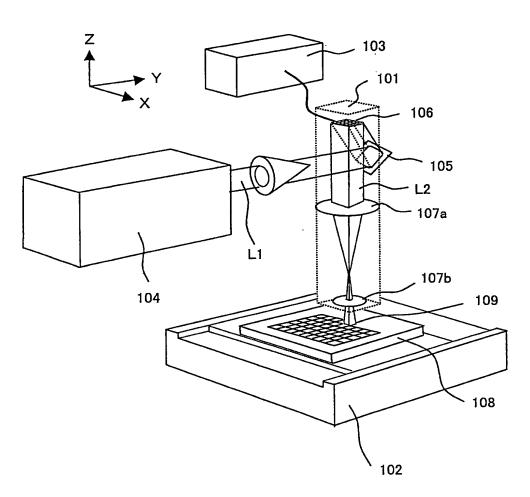


Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

図 10

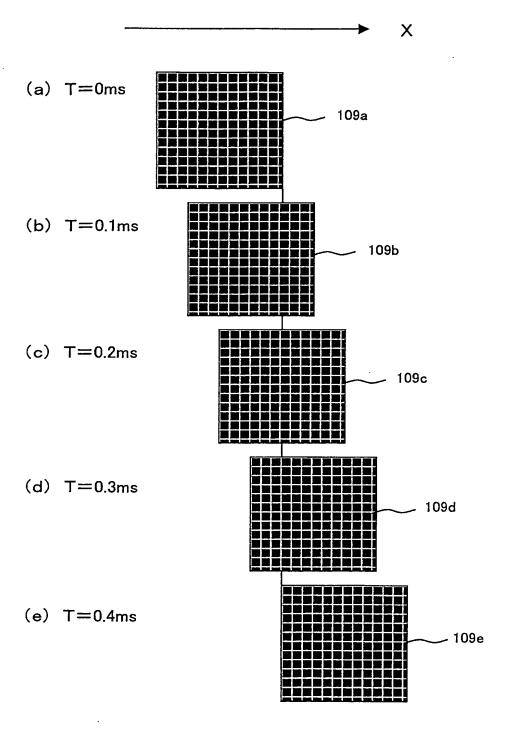
100



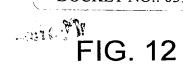
Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

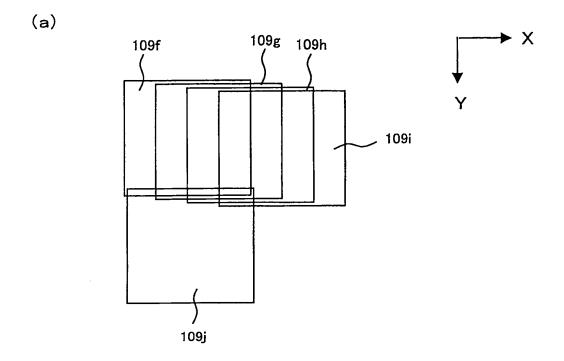
10/552731

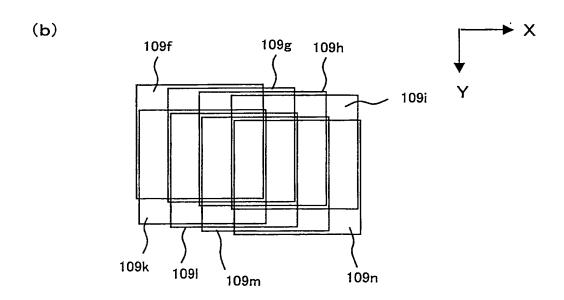
FIG. 11



Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

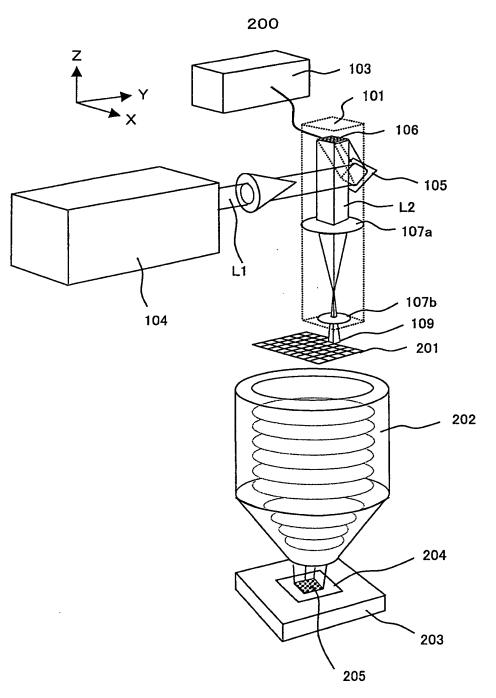






Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

FIG. 13

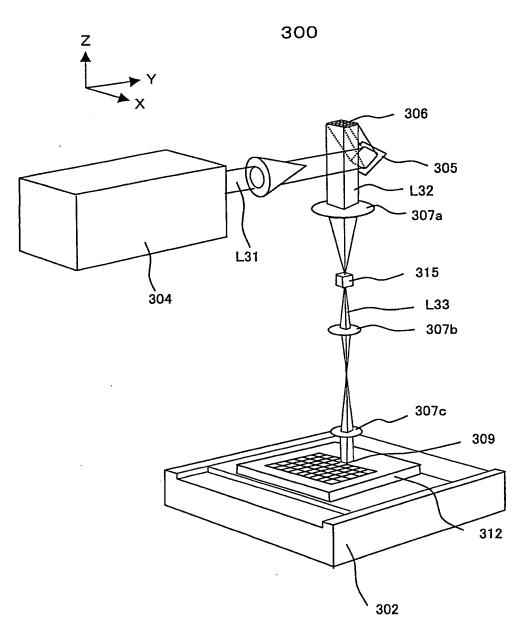


Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

FIG. 14

Ser.

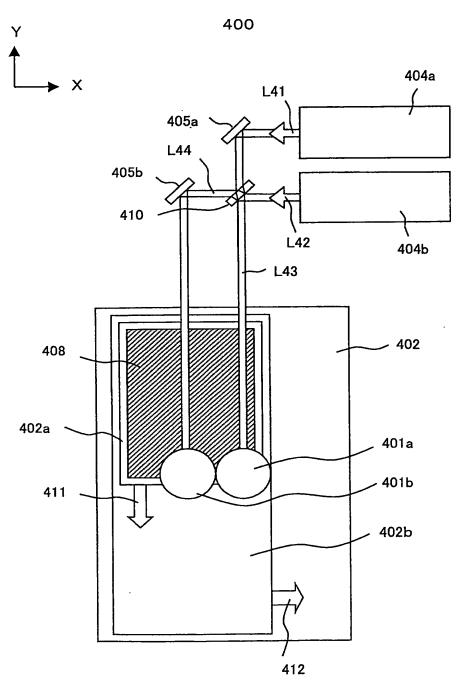


Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

18 1 V

7.

FIG. 15

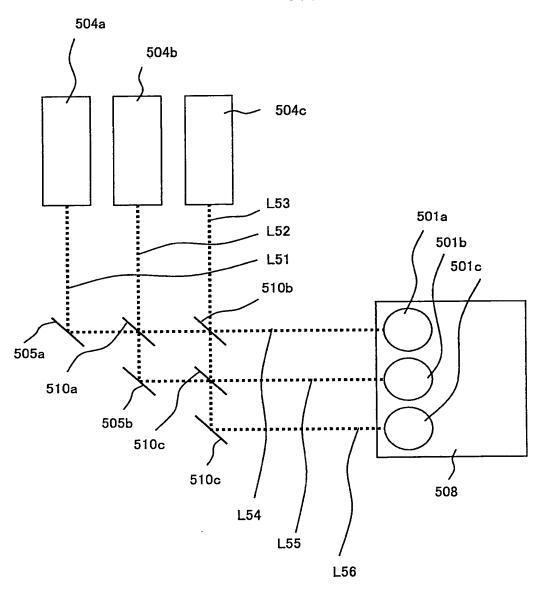


Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

FIG. 16

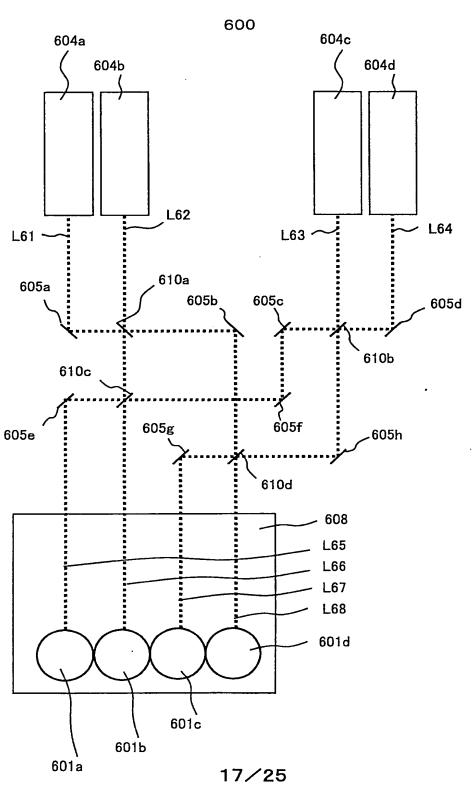
500



10/552731

Title: PATTERN WRITING
SYSTEM AND PATTERN
WRITING METHOD
Inventor(s): Tadahiro OHMI, et al.
DOCKET NO.: 039262-0142

FIG. 17

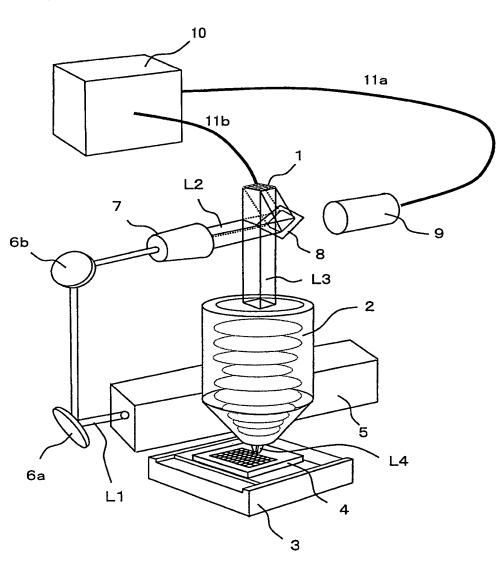


Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

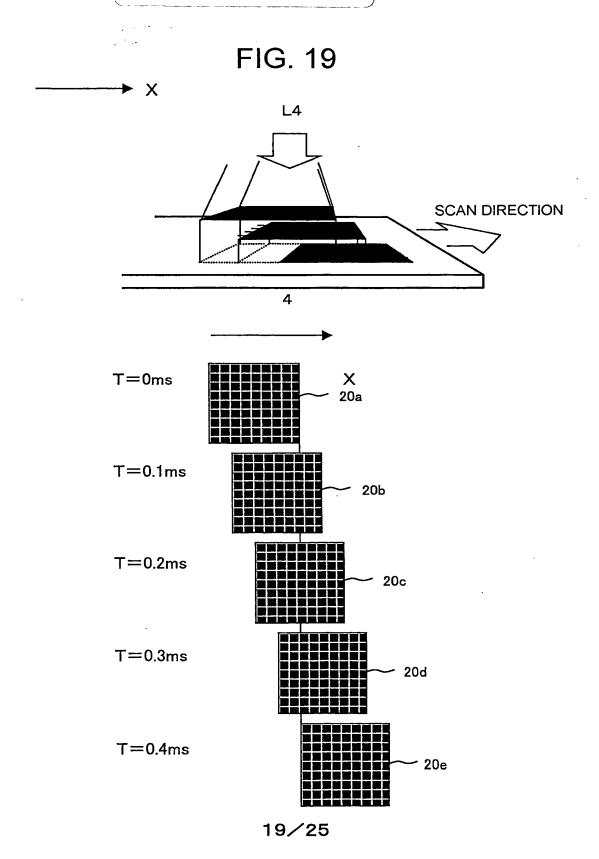
10/552731

FIG. 18

<u>100</u>



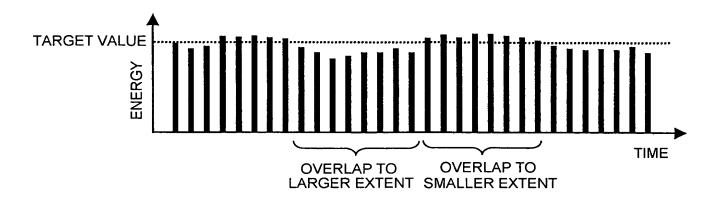
Inventor(s): Tadahiro OHMI, et al. DOCKÉT NO.: 039262-0142



Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

10/552731

FIG. 20



Title: PATTERN WRITING
SYSTEM AND PATTERN
WRITING METHOD
Inventor(s): Tadahiro OHMI, et al.

Inventor(s): Tadahiro OHMI, et a DOCKET NO.: 039262-0142

FIG. 21

200

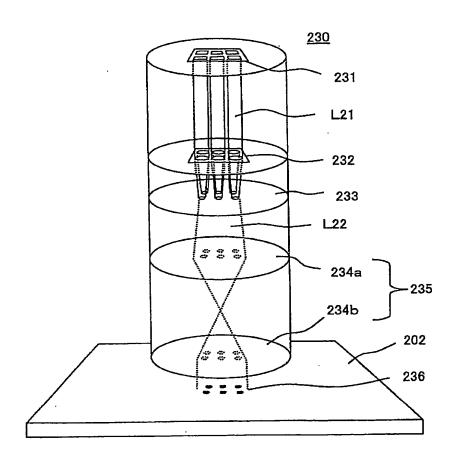


FIG. 22

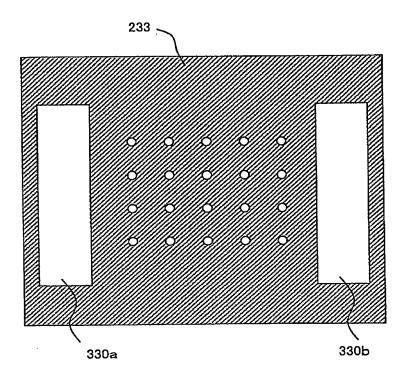
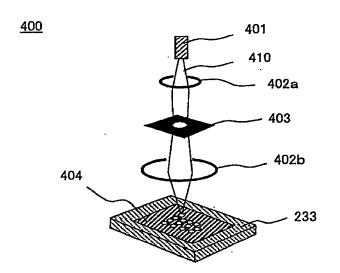


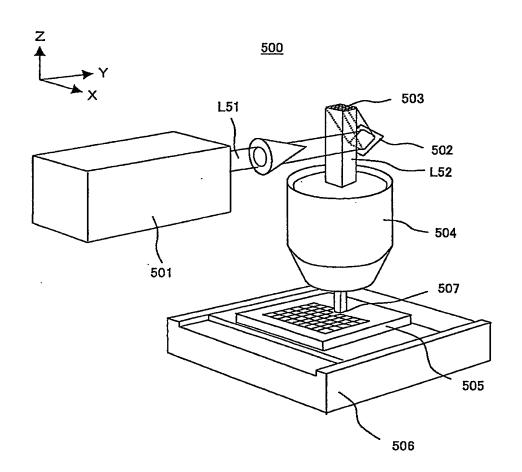
FIG. 23



Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142



FIG. 24



Inventor(s): Tadahiro OHMI, et al. DOCKET NO.: 039262-0142

FIG. 25

